Experiment Regarding Magnetic Fields with Gravity

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Research Article

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Abstract

The ground-based device simulates the potential energy (voltages) between gravity and magnetic seas. The magnetic sea generator (MG) generated currents and voltages on the mesoscopic scale in the vacuum. Gravity interacts to generate electricity in the Earth's direction or the opposite direction by the repulsive magnetic force. A trapped gravity was set to behave as free relativistic quantum particles or fluids, making it possible to measure the voltage and current as a function of time according to the particle or fluid interaction and position in the magnetic sea. Our result is grounded on rigorous proof based on numerical and analytic computations, which took it accessible to study the magnetic sea for different initial superposition of positive- negative-gravity spinor state in the space Hieut (H). As evidence, we present the measurement data of gravitational waves (GW20200618), which were impossible to measure during the pandemic at LIGO. If the MG generates negative current and positive voltage in vacuum states, this signifies the gravitomagnetic potentials induced by gravitational fluids or particles in the magnetic sea. The theory of quantum mechanics can be merged with the theory of general relativity or gravitational force at microscopic length scales. Now, we can convert the study of light trapped in a black hole into a study of gravity trapped in space H.

Introduction

Detection of astrophysical gravitational waves with laser interferometers such as LIGO can explore relatively low-frequency ranges [1] [2]. On the other hand, electromagnetic detectors of gravitational waves could explore a higher frequency range, typically from kHz to 100GHz when using radio-frequencies or from 100GHz to THz[3]. However, it is tough to make electromagnetic detectors of gravitational waves[4].

It would be better to make electromagnetic detectors of gravitational collisions within a more prosperous Earth's gravitational field in the magnetic seas. Gravitation has been regarded as week interactions compared to electromagnetism or nuclear forces. However, if we can use the Earth's gravity for experiments, we face a different situation. It is because the Earth's gravity is a considerable force, as seen when we fall. We decided to use Newton's third law (Lex Tertia): the law of conservation of momentum[5]. The Earth's gravitational collisions do not require any new physics nor technology[6]. We tried to demonstrate that gravity induces magnetic seas by monitoring the electricity and time in the magnetic sea generator (MG).

Methods

Experimental Design

The magnetic sea generator (MG) exhibits electronic properties distinctive from the quantum particles described by the Dirac or Schrödinger equation. Thus, this system is not only impressive in itself but also allows one to access – in a condensed magnetic-gravity field experiment – the subtle and rich physics of quantum electrodynamics.

In 2018, we designed a testing device to convert gravity into electricity (Supplemental Section 1). The experimental apparatus was assembled on 26 September 2019. Electricity was measured by a precision source/measurement device (Supplemental Section 2). To prove that the electricity in the electromagnetic (EM) field was caused by gravity, we assembled a generator that cannot generate electricity according to Maxwell's equations. The N poles of the magnets were placed upwards, north, south, east, and west. Coil Ass'Y was placed between two N poles, and the generator was assembled with bearing covers on the top and bottom. The precision source/measurement unit was connected to measure the electricity generated from a Pico ampere (pA) to a microampere (μA).

The First Preparation and Measurement

1.   While the generator was rotating

The experiments were carried out three times by placing dumbbell A and dumbbell B on the generator while rotating the magnets. The procedure was as follows:

   1. We measured the amount of electricity generated while rotating without weight.
   2. To apply the weight in a three-dimensional world, we measured the amount of electricity generated by placing dumbbell A while rotating.
   3. To apply more weight in the three-dimensional world, we measured the amount of electricity generated by placing dumbbell B on dumbbell A while rotating.
   4. To reduce the weight in the three-dimensional world, we measured the amount of electricity generated by removing dumbbell B from dumbbell A while rotating.
   5. To reduce the weight in the three-dimensional world, we measured the amount of electricity generated by removing dumbbell A while rotating.
   6. We measured the amount of electricity generated while rotating without weight.

The experiments were conducted three times (A, B, C) while the magnets were rotating.

2.   While the generator was stationary

While the generator was stationary, dumbbell A and dumbbell B were placed on the generator in turn and measured three times, and the procedure was as follows:

   1. We measured the amount of electricity generated while the generator was stationary.
   2. To apply the weight, we measured the amount of electricity generated by placing dumbbell A while stationary.

3. To apply more weight, we measured the amount of electricity generated by placing dumbbell B on dumbbell A while stationary.

4. We measured the amount of electricity generated by removing dumbbell B from dumbbell A while stationary to reduce the weight.

5. We measured the amount of electricity generated by removing dumbbell A while stationary to reduce the weight.

6. We measured the amount of electricity generated while the generator was stationary and free of dumbbells A and B.

These experiments were conducted three times (experiments D, E, F) while the generator was stationary.

3. Only voltage measurements

Experiments were performed to compare only the voltages obtained while the generator was rotating or stationary. We used a TDS 2014 four-channel digital storage oscilloscope voltage metre (100 MHz, 1 GS/s). A video was taken because the voltage metre could not save and output the data.

The Second Electricity, while Stationary in the Vacuum Chamber

The amounts of electricity and voltage generated in the vacuum chamber were measured. The Korea Institute of Civil Engineering and Building Technology (KICT) has operated at the centre of extreme environmental construction technology. The small chamber can create a pressure environment of 1E-6 mbar (hPa) and has a halogen lamp that can be heated to over 100 degrees Celsius and a cooling plate that can cool it to -190 degrees Celsius (using liquid nitrogen). The magnetic sea generator experiment was performed in an absolute vacuum state chamber. All factors other than gravity were excluded, and the measurement environment was monitored.

1) Chamber information

  Size: 1.0m in diameter, 1.3m in length

  Material: Stainless Steel 304

2) Pump

- Low vacuum (1000~1E-2 mbar): Dry Vacuum pump (Model: EV-S20, Manufacturer: EBARA, Pumping performance: 1670 L/min)

- High vacuum (1E-2 mbar or less): Turbopump (Model: HIPACE2300, Manufacturer: PFEIFFER VACUUM, Pumping performance: 1900L/s (Nitrogen basis))

3) Gauge

⬜   1100~11 mbar: Ceramic Capacitance Gauge (Model: CMR 361, Manufacturer: PFEIFFER VACUUM, Accuracy: 0.20%)

⬜   11~0.11 mbar: Ceramic Capacitance Gauge (Model: CMR 363, Manufacturer: PFEIFFER VACUUM, Accuracy: 0.20%)

⬜   0.11~0.0011 mbar: Ceramic Capacitance Gauge (Model: CMR 365, Manufacturer: PFEIFFER VACUUM, Accuracy: 0.20%)

⬜   0.0011 mbar or less: Cold Cathode Gauge (Model: PKR251, Manufacturer:

This experiment was performed in a vacuum chamber and measured points 1 to 100,000 for 10 seconds and all added together, so we compared the increasing and decreasing trends. We observed the change in the amount of voltage and current generated as the barometric pressure decreased. (Supplemental S4)

The actual temperature (°C) is an average of 25.5, mean 25.4, min. 25, max. 27.1 and humidity (%) averaged 53.1, mean 53.2, min. 52.1, max. 54, and the pressure (milliTorr) was average 35.8, mean 35.8, min. 35.2, max. 36.2, and the measurement time (Seoul time) was from 2020.06.18 15:35:53 to 16:32:01. (Data S3 2020.06.18.200618.153552(Chamber).xls)

Calculations with Data

We used Google spreadsheets for statistics and R^2 calculation and drawing the trend lines.

Results

Gravity only generates electric potentials

We connected the MG to a TDS 2014 four-channel digital storage oscilloscope (100 MHz, 1 GS/s). The voltage was measured during experiments in order while the generator was rotating through the monitor. Gravity only generates electric potentials[7]: The data were

6.20→4.80→11.0→10.6→10.6→11.0→9.00→11.0→5.00→6.60→10.4→8.40→11.6→10.2
→10.6→8.60→6.80→11.2→8.60→9.20→9.00→11.2→10.4→8.40→7.60→9.00→10.6→7.
00→6.80→10.2→12.6→10.8→9.40→10.2→9.20→10.0→7.00→11.2→11.0→8.40→8.60→
8.80→7.80→11.4→9.20→7.20→9.00→7.80→6.80→8.80→9.60→5.60→8.80→12.0→9.40
→7.60→5.60→11.0→8.60→11.6→12.2→11.6→11.2→9.00→10.2→8.20→9.40→7.40→11
.4→9.60→11.4→6.60→7.40→9.40→9.80→10.6→9.20→8.20→11.8→9.20→6.80→10.0→
9.00→8.40→8.00→9.00→9.60→10.8→8.40→8.80→9.20→12.0→9.80→12.6→8.40→9.20
→8.20→12.8→9.20→8.20→10.6→9.60→8.20→6.40→8.40→9.40→10.8→14.8→10.4→12
.0→11.4→9.00→12.2→5.80→11.2→11.0→12.6→13.0→9.20→7.80→11.6→11.0→8.00→
13.8→5.20→6.60→10.2→9.40→11.0→9.80→10.6→9.60→11.0→10.8→11.2→8.00→8.40
→10.2→10.0→6.20→7.60→9.60→7.60→9.20→8.20→9.20→9.60→7.60→9.60→8.00→9.
60→10.0→6.60→12.0→10.8→8.60→12.4→9.80→5.20→8.60→9.80→11.8→10.0→5.00→
6.60→6.20→4.00→3.00→3.20→3.80→3.20→3.40→3.80→4.00→3.40→4.40→3.20→4.00
→7.60→7.60→11.6→10.6→14.6→10.4→12.2→11.4→9.80→14.4→13.6→12.6→8.80→10
.2→7.40→13.6→11.8→11.0→13.4→10.0→8.40→8.60→9.20→10.4→9.60→7.80→7.20→
10.6→12.4→8.80→9.00→6.80→5.40→10.4→5.60→8.00→9.00→8.80→10.2→7.00→10.2
→9.60→10.8→8.80→6.00→10.2→8.80→10.4→8.80→8.20→11.6→7.80→8.20→8.80→10
.4→7.60→8.60→9.00→10.8→9.60 (V) while the generator was rotating.

Furthermore, the voltage was measured during experiments in order while the generator was stationary through the monitor. This is because gravity only generates electric potentials well[8]: The data were

3.60→3.20→3.40→3.20→4.00→3.60→3.40→3.80→4.00→5.00→3.40→2.80→3.80→4.00
→3.40→4.00→3.60→3.40→4.00→3.80→3.40→4.20→3.40→3.80→3.40→3.20→3.40→4.
00→3.20→4.20→3.40→3.60→3.00→3.20→3.80→4.20→3.40→3.60→3.40→4.00→3.40→
4.00→3.80→3.00→3.80→4.00→3.00→3.20→3.80→3.20→3.40→3.80→4.00→3.40→4.40
→3.20→4.00→7.60→4.60→3.60→4.00→3.80 (V) while the generator was stationary.

The MG was connected to measure the amount of electricity. When it rotated faster, it produced more electricity. We measured electricity three times (A, B, C) while the MG rotated (Table 1) and three times (D, E, F) when the MG was stationary.

The Newtonian metric fluctuation

The electricity generated in a stationary state was examined more precisely than in a rotated state: Experiments D1, E1, and F1. The data of experiments D1, E1, and F1 from the stationary MG were analyzed in rows 312 to 412 to remove the effects of weight, the time interval was 0.1 seconds, and there were 100 measured points[9]. In experiment D1, the voltage ranged from -11.1 to 13.0 microvolts, and the current ranged from -1.90 to 29.0 microamps. In experiment E1, the voltage ranged from -11.9 to 9.60 microvolts, and the current ranged from -2.00 to 2.40 microamps. In experiment F1, the voltage ranged from -8.10 to 14.1 microvolts, and the current ranged from -3.30 to 3.00 microamps. (Supplement S3. 2019-10-10 Experiments)

The symmetry in Lex Tertia

We found the symmetry in Lex Tertia: data of voltage (0) and current (0) in the equilibrium state during experiment F4 6380 (6379) (Data S1 2019.10.10. Experiments with the magnetic sea generator in the air: F4.csv). There was a balanced state between gravity and the repulsive magnetic force in the air (Fig. 1).

Gravity trapped in space H

Earth's gravity was the sole factor influencing this experiment's magnetic fields in a firmly fixed Hieut (H) space on Earth. When preparing the MG in the air for a vacuum experiment, we measured the values -578 picoamps ~ +595 picoamps. The MG generated the voltage from -16.1 microvolts to +18.3 microvolts in the air (Data S2 2020.06.18. Vacuum chamber & magnetic sea generator in the air: equipment1.csv). However, the MG generated voltage from +42.8

microvolts to +794 microvolts in the vacuum experiment (Data S3 2020.06.18. Experiments with the vacuum chamber's magnetic sea generator: vaccum_0.0001mbar4.csv). The current values all indicated negative (-) in the vacuum experiment.

We summarized the amounts of electricity generated in the vacuum chamber. To compare the MG's electricity, three measurements were made three times in the air, two times at 1,000 mbar, three times at 100 mbar, three times at ten mbar, three times at one mbar, three times at 0.1 mbar, five times at 0.01 mbar, and ten times at 0.0001 mbar after the current and voltage generated by itself were measured by connecting the two poles of Keysight B2901A. We compared all 100,000 points for 10 seconds. (Table 2)

The voltage measurement value of MG in the air is as follows: median (M) and sum are 1st (M 5.00E-08, sum -1.26E-03), 2nd (M 0.00E+00, sum 1.03E-03), 3rd (M 0.00E+00, sum -5.00E) -04) was. The voltage measurement value of MG at 0.0001 mbar is as follows: M and sum were 1st (M 4.09E-04, sum 4.11E+00), 2nd (M 3.86E-04, sum 3.89E+00), 3rd (M 4.08E-04, sum 4.10E+00) . The MG has generated much more voltage in the vacuum chamber than in the air (Fig. 2). To compare the MG's voltage, three measurements were made first in air and ten times at 0.0001 mbar. We compared from point 2897 to 2997 of 100,000 points for 10 seconds. The MG has a large (+) voltage generated in a vacuum (Fig. 3).

The current measured value of MG in the air is as follows: M and sum are first (M -6.28E-07, sum -6.28E-03), second (M -6.25E-07, sum -6.25E-03), third (M -6.14E-07, sum -6.14E-03). The current measured value of MG at 0.0001 mbar is as follows: M and sum are 1st (M -5.69E-07, sum -5.68E-03), 2nd (M -5.35E-07, sum -5.33E-03), 3rd (M -5.70E-07, sum -5.69E-03). The MG has a large amount of (-) current generated in a vacuum (Fig. 4). To compare the MG's current, three measurements were made first in air and ten times at 0.0001 mbar. We compared from point 2897 to 2997 of 100,000 points for 10 seconds. The MG has a large (+) voltage generated in a vacuum. The MG has generated more current in the vacuum chamber than in the air (Fig. 5).

GW20200618

During the 6th measurement of MG in the vacuum on June 18, 2020, the voltage increased rapidly 0.0352 millivolt, 0.0356 millivolt, 0.129 millivolt, 3.54 millivolt, 0.0408 millivolt at 3502, 3503, 3504, 3505 and 3506 points. (Fig. 6) It was not phenomena caused by the sudden change of pressure in the vacuum tube because 0.001-second units measure it, and only five points change in succession. LIGO and Virgo have suspended the third observing run on 27 Mar 2020 at 17:00 UTC, as the current worldwide COVID-19 pandemic demands[10]. Dr J. K. of LIGO confirmed that LIGO was not operating on June 18, 2020.

We designate points 3503, 3504 and 3505 as GW20200618 as a phenomenon in which gravitational waves are trapped in the sea of magnetic fields.

Discussion

The enormous magnetic field observed inside the supernova remnant of Cassiopeia A

The supernova explosion experiment on the table explains why 'Cassiopeia A', one of the remnants left after the supernova explosion, has an unusually irregular structure and the reason why the 'magnetic field amplification' occurred in the wreckage, where the magnetic field is 100 times higher than that of its surroundings. It was prepared in a small box that mimics outer space. First, an airtight box filled with argon gas to a very low density is made. It mimics the low density of outer space. Inside the box, a hair-thick carbon rod was set. The carbon rod is a star that will cause a massive explosion. A plastic grid was placed one centimetre away from the carbon rod. In outer space, a relatively dense gas cloud or gas mass may exist around a supernova. It fires three high-power laser beams at the tip of a carbon rod. The tip of the carbon rod is immediately heated to millions of degrees and explodes. The explosion, which took place inside a box filled with low-density argon gas, mimics a supernova, a massive explosion in outer space. The blast wind expands instantaneously and passes through a plastic grid a centimetre away. Fierce winds hitting the grid create turbulence. It is a device that can explain why supernova remnants with irregular structures were formed [11]. The supernova explosion experiment on the table could look at the velocity instead of the magnetic field's density or look at the pressure.

However, our study is something different. An MG, similar to a plastic grid with a very high magnetic field density, was placed with shallow air pressure in a vacuum chamber. Instead of a supernova explosion or a high-power laser beam, Earth's gravity or gravitational waves were passed through an area of high magnetic field density in a vacuum stage. The MG produced a certain amount of electricity in the stationary state.

The current was made in the downward direction when the bearing cover was pressed in the air. Furthermore, electricity was also produced upward when the bearing cover jumped near the magnetic field. Electricity with the same pattern was generated when dumbbells 1 and 2 were placed on the MG rotating[12] or stationary[13]. There have been several studies between electromagnetic and gravitomagnetic permittivity and permeability[14-16]. If gravity is present in the magnetic seas, gravity or gravitational wave can induce the magnetic seas.

Magnetic Sea trap Gravity

Earth's gravitational field at a location is a fixed vector pointing downwards to the Earth's centre. Its average magnitude is 9.8 m/s^2 at its surface[17], but the quantum nature of spacetime on a microscopic scale linearly might alter the light's speed, 299,792,458 m/s [18]. For example, the magnetic sea can trap gravity by force more potent than 10^{39} of the Earth gravity in space H.

High-energy particle physics facilities have been evaluated based on scientific potential, technical construction and financial requirements, and flexibility for further upgrades and developments. Colliders from the 2-m-long 0.16 GeV electron-positron collider in Russia to the world's biggest Large Hadron Collider at CERN with a 27-km-long 14 TeV centre-of-mass energy circumference represent some of the most expensive facilities for fundamental science research[19] [20].

On the other hand, the MG does not collide with collider against Earth gravity, only observed the results of the interaction of gravity in the magnetic sea with tiny device for the study of fluids or particles much smaller than phonon in atomic Bose-Einstein condensates[21]. One of the difficulties in formulating the quantum gravitational theory is that the quantum gravitational effect only appears on the Planck length of 10^{-35}m. This Planck length is much smaller than the range currently accessible through high-energy particle accelerators, and much larger in energy. Therefore, physicists lack the experimental data that can compare and verify the various theories presented, so only an approach through thought experiment is suggested as a way to test these theories. What verifiable predictions does any theory of quantum gravity make? Here we present one observational data that can be a solution.

We are well aware that there are various opinions on interpreting the gravitational-wave measurement of the MG, which was named GW20200618. Using Maxwell equations, a modified nonlinear Schrodinger equation is derived for nonlinear propagation of the laser pulse interaction with magnetized plasma in the relativistic regime. It is found that the compression of the ultra-short laser pulse is enhanced by the application of a static magnetic field, and the laser pulse is gradually compressed from 30 to 12 fs and the splitting of the laser pulse inside the plasma and the generation of magnetic turbulence like GW20200618[22]. GW20200618, the pattern occurring at points 3502, 3503, 3504, and 3505 in the 6th measurement of MG, shows a typical pattern when gravity are trapped in the magnetic sea, the potential increases as gravity overlaps in units of 0.001 seconds. GW20200618 is measured because it is much larger than Earth's gravity. I propose to monitor the gravitational wave by operating MG simultaneously with LIGO and Virgo in Seoul. It shall have measured a lot more small gravitational waves if it exists in outer space over Earth. In addition, it will be possible to analyse the characteristics of gravitational waves as particles or fluids. It was expected from the beginning that the MG, which was made for an experiment that could consider gravity as a quantum rather than weight, would be able to measure gravitational waves. It was assumed that gravity could only be regarded and experimented as a quantum when trapped in a sea of magnetic fields. To apply gravity to quantum field theory according to the general theory of relativity, it is necessary to establish gravitational quantum mechanics while experimenting with gravity in a sea of magnetic field. This is also the reason why there is no formula in this study.

Dirac Sea and Magnetic Sea

It provides a natural description of the electron spin and predicts the existence of antimatter[23]. The Dirac equation as relativistic quantum mechanics is considered the natural transition to quantum field theory and predicts some peculiar effects, such as Klein's paradox[24] or 'Zitterbewegung', an unexpected quivering motion a free relativistic quantum particle[25]. Dirac Sea is a state filled with infinitely many particles in the negative energy state. These are all virtual particles, but empty spaces appear as anti-particles when they get enough energy and become fundamental particles. In such a Dirac sea, positrons could be predicted for electrons[23]. There have been increased simulations of relativistic quantum effects using different physical setups. For example, a single trapped ion was set to behave as a free, relativistic quantum particle, which made it possible to measure the particle position as a function of time and study Zitterbewegung for different initial superpositions positive negative-energy spinor states[26].

However, we find that the magnetic sea is full of negative current by gravity potentials. If gravity gains enough power and becomes a fundamental particle, we may predict that antigravity appears in space. There may be instability associated with negative kinetic potential energies in the antigravity regions[27]. It is in line with how black holes obtains power and emit energy and particles[28, 29]. It may be the basis for discovering the existence of dark energy in the universe[30].

Spacetime Singularities in the Magnetic Sea

J. S. of the Israel Technion Institute embodies the physical system from which sound, not light, cannot escape in a cryogenic state and compared 'black hole of sound' to a black hole, and announced that he observed a phenomenon in which sound escapes the black hole of sound like Hawking radiation, although weakly. A pair of oscillations has been compared to a particle-antiparticle pair. Acoustic protons could also be ejected out of the black hole of sound, just as particle-antiparticle pairs fall from each other at the edge of a black hole like Hawking radiation[21].

Ohm's law means that the current flowing by the potential difference (voltage) appearing between two conductor points obeys a specific law. Ohm's law is microscopically the same as if an object moves at a speed of v for the magnetic field B; this equation has a relationship with the Lorentz force that there is a drag proportional to the speed of the charge carrier in the coil assy of the MG[31, 32].

[Ohm's law is microscopical]

$$\mathbf{J} = \sigma \mathbf{E}. \quad \mathbf{J} = \sigma \cdot (\mathbf{E} + \mathbf{v} \times \mathbf{B}) \qquad (1)$$

(J is the current density, σ is the electrical conductivity (maybe a tensor in anisotropic materials), and E is the electric field)

Suppose the currents and voltages were generated at the equilibrium state. In that case, there is no other way to explain this phenomenon other than describing it as the generation of electricity by dividing particles according to the Weinberg-Witten theorem[33]. It is like spherically symmetrical collapse (one space dimension suppressed) within Schwarzschild radius, accompanied by a violent release of energy, possibly gravitational radiation[34]. Assuming that there is no singularity in the space-time of the sea of magnetic fields, electricity cannot be generated by gravity. However, this experiment proves that the non-existence of singularities is inevitably contradictory. However, in spacetime singularities, space H creates a temporarily closed surface. The speed of gravity at space H can be the light speed[35] [36], and the magnetic field force is much stronger than gravity, so it is within the Newtonian limit [37]. Spacetime singularities generate gravitational waves emission during the black hole ringdown phase. A simple coupling between gravitational perturbations and this scalar hair caused the quasinormal ringing of the Schwarzschild–de Sitter black hole. Also, it produces echoes in the emitted gravitational waves [38]. Suppose, according to reduction to absurdity, deviations from spherical symmetry cannot prevent gravitational collapse and spacetime singularities from arising[34]. Now, we can convert the study of light trapped in a black hole into a study of gravity trapped in space H. Those in space H can induce the

quasinormal ringing of the magnetic sea to generate electricity. A boundary point can detect gravitational waves in the cosmos with an electromagnetic device[1, 4, 39, 40].

Conclusion

The MG generated electric currents in the Earth direction. Earth pulls the sea of magnetic field just as the moon pulls the oceans. By substituting the measured data into various quantum mechanical equations, we will predict valid values and verify correct equations. If the MG generates negative current and positive voltage in vacuum states, this signifies the gravitomagnetic potentials induced by gravitational fluids or particles in the magnetic sea. The theory of quantum mechanics can be merged with the theory of general relativity or gravitational force at microscopic length scales.

Declarations

Acknowledgements

Il-whan Kim designed the generator. He is a generator developer with 40 years of experience and asserted that electricity could never be generated from this device; James Oh, general manager of Jays, Inc., in South Korea, compiled the data to assist with the Keysight B2901A electricity experiment when running the generator. Taeil Chung of the Extreme Engineering Research Center at the Korea Institute of Civil Engineering and Building Technology operated a vacuum chamber to assist with this experiment. Woo-Seung Maeng and Jae-yeol Shim provided the necessary expenses for this paper. D. Młodziankowski provided the references of gravitational experiments to explain Dr Füzfa's experiments.

Author Contributions

JH Lee developed the theory of gravity generation, performed the experiments and wrote the manuscript.

Competing Interests

"The authors declare no competing interest."

Data and Materials Availability

All data is published by OSF: Gravity to Electricity as Quantum (https://osf.io/ntuda/).

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Tables

Table 1. The electricity generated while the MG was rotating and stationary was measured on October 10, 2019.

	CH1 Current (A)			CH1 Voltage (V)			10 second -100,000 point (every 0.001 s)
	Maximum	Minimum	Sum	Maximum	Minimum	Sum	
A1	0.0004433	-0.0003803	-0.0009149	0.0000204	-0.0000172	-0.0019751	
A2	0.0007458	-0.0016802	-0.1374131	0.0000179	-0.0000208	-0.0002372	
A3	0.0010683	-0.0017568	-0.1140228	0.0000251	-0.000031	0.0017442	
A4	0.0026882	-0.0011917	0.1360524	0.0000189	-0.0000229	-0.0002788	
A5	0.0056106	-0.0047926	0.1460264	0.0000815	-0.0000623	-0.0017428	
A6	0.0004334	-0.0003605	0.0101899	0.0000194	-0.0000186	-0.0022982	
B1	0.0005052	-0.0003646	0.0056757	0.0000209	-0.0000189	0.0005494	
B2	0.0008837	-0.0021383	-0.1239456	0.0000237	-0.0000212	0.0019692	
B3	0.0008959	-0.0032941	-0.1080884	0.0000406	-0.0000417	-0.0024536	
B4	0.0024636	-0.0011921	0.0723971	0.000019	-0.0000214	-0.0013109	
B5	The test recorder overwrote the measurement data in the notebook.						
B6	0.0004619	-0.0003687	-0.0004063	0.0000211	-0.0000182	0.0013422	
C1	0.0004593	-0.0003969	0.033351	0.0000198	-0.0000202	-0.0034343	
C2	0.0004714	-0.0012035	-0.0831234	0.0000191	-0.0000231	-0.0006971	
C3	0.0026662	-0.0019067	-0.0950192	0.0000236	-0.0000218	0.0001664	
C4	0.0029132	-0.0016932	0.118348	0.0000194	-0.0000221	-0.0022711	
C5	0.0052364	-0.0065765	0.1328696	0.0000721	-0.0000538	0.000513	
C6	0.0004454	-0.000404	0.0400267	0.0000224	-0.0000205	0.0011928	
D1	0.0000047	-0.000004	0.0025892	0.0000186	-0.0000187	-0.0014627	
D2	0.0010419	-0.0015249	-0.1176412	0.0000171	-0.0000197	-0.003063	
D3	0.0010506	-0.0007511	-0.0177963	0.0000178	-0.0000204	-0.001477	
D4	0.0004691	-0.0004882	0.0123762	0.000017	-0.0000158	-0.0009084	
D5	0.0072367	-0.0075738	0.1321999	0.0001089	-0.0000709	-0.001653	
D6	0.0000038	-0.0000042	0.0020211	0.000019	-0.0000218	0.0019935	
E1	0.0000084	-0.0000079	0.0012128	0.0000195	-0.0000191	-0.0003436	
E2	0.0013242	-0.002625	-0.1247941	0.0000429	-0.0000418	-0.0008347	
E3	0.0010188	-0.0005505	-0.013439	0.0000193	-0.0000207	0.0005212	
E4	0.0004207	-0.0003099	0.0131795	0.0000188	-0.0000196	-0.0018299	
E5	0.0049669	-0.0050688	0.1273632	0.0000908	-0.0000666	0.0001761	
E6	0.0000043	-0.000044	0.0010742	0.0000184	-0.0000191	0.0015754	
F1	0.0000042	-0.0000044	0.0002018	0.0000176	-0.0000189	-0.0001177	
F2	0.0004822	-0.0015375	-0.1268739	0.0000174	-0.0000233	-0.0024814	
F3	0.0008517	-0.0004604	-0.0165925	0.0000196	-0.0000191	-0.0001067	
F4	0.0006965	-0.0002703	0.0236493	0.0000186	-0.0000201	0.0014059	
F5	0.004052	-0.0040384	0.1180847	0.0000597	-0.0000483	-0.0016282	
F6	0.0000041	-0.0000042	0.0002543	0.0000187	-0.0000202	0.0015011	

Table 2. The experiment with the magnetic sea generator in the vacuum chamber on June 18, 2020.

Barometric pressure (mbar)		Keysight		Air		1000		100		10		1	
		M	Sum	M	Sum	M	Sum	M	Sum	M	Sum	M	Su
1st measurement	Current	-2.00E-12	-1.38E-08	-6.28E-07	-6.28E-03	-5.71E-07	-5.69E-03	-5.72E-07	-5.70E-03	-5.69E-07	-5.68E-03	-5.69E-07	-5.
	Voltage	0.00E+00	-3.42E-04	5.00E-08	-1.26E-03	4.09E-04	4.11E+00	4.21E-04	4.22E+00	4.22E-04	4.22E+00	4.19E-04	4.2
2nd measurement	Current	-5.00E-12	-7.11E-08	-6.25E-07	-6.25E-03	-5.78E-07	-5.77E-03	-5.71E-07	-5.69E-03	-6.01E-07	-6.00E-03	-5.68E-07	-5.
	Voltage	-1.00E-07	-7.79E-04	0.00E+00	1.03E-03	4.26E-04	4.28E+00	4.15E-04	4.17E+00	5.47E-04	5.48E+00	4.17E-04	4.1
3rd measurement	Current	-9.00E-12	-9.57E-08	-6.14E-07	-6.14E-03			-5.74E-07	-5.72E-03	-5.80E-07	-5.78E-03	-5.33E-07	-5.
	Voltage	0.00E+00	1.81E-04	0.00E+00	-5.00E-04			4.20E-04	4.23E+00	4.66E-04	4.68E+00	3.93E-04	3.9
4th measurement	Current												
	Voltage												
5th measurement	Current												
	Voltage												
6th measurement	Current												
	Voltage												
7th measurement	Current												
	Voltage												
8th measurement	Current												
	Voltage												
9th measurement	Current												
	Voltage												
10th measurement	Current												
	Voltage												
Average	Current		-6.02E-08		-6.22E-03		-3.82E-03		-5.70E-03		-5.82E-03		-5.
	Voltage		-3.13E-04		-2.43E-04		2.80E+00		4.21E+00		4.79E+00		4.1

(mbar)		1st		2nd		3rd		4th		5th		6th	
		Curr	Volt	Curr	Volt	Curr	Volt	Curr	Volt	Curr	Volt	Curr	Volt
Keysight	M	-2.00E-12	0.00E+00	-5.00E-12	-1.00E-07	-9.00E-12	0.00E+00						
	Sum	-1.38E-08	-3.42E-04	-7.11E-08	-7.79E-04	-9.57E-08	1.81E-04						
In the air	M	-6.28E-07	5.00E-08	-6.25E-07	0.00E+00	-6.14E-07	0.00E+00						
	Sum	-6.28E-03	-1.26E-03	-6.25E-03	1.03E-03	-6.14E-03	-5.00E-04						
1000	M	-5.71E-07	4.09E-04	-5.78E-07	4.26E-04								
	Sum	-5.69E-03	4.11E+00	-5.77E-03	4.28E+00								
100	M	-5.72E-07	4.21E-04	-5.71E-07	4.15E-04	-5.74E-07	4.20E-04						
	Sum	-5.70E-03	4.22E+00	-5.69E-03	4.17E+00	-5.72E-03	4.23E+00						
10	M	-5.69E-07	4.22E-04	-6.01E-07	5.47E-04	-5.80E-07	4.66E-04						
	Sum	-5.68E-03	4.22E+00	-6.00E-03	5.48E+00	-5.78E-03	4.68E+00						
1	M	-5.69E-07	4.19E-04	-5.68E-07	4.17E-04	-5.33E-07	3.93E-04						
	Sum	-5.68E-03	4.21E+00	-5.67E-03	4.19E+00	-5.31E-03	3.93E+00						
0.1	M	-5.75E-07	3.92E-04	-5.71E-07	4.01E-04	-5.33E-07	3.80E-04						
	Sum	-5.73E-03	3.93E+00	-5.70E-03	4.03E+00	-5.31E-03	3.82E+00						
0.01	M	-5.72E-07	3.88E-04	-5.72E-07	3.98E-04	-5.39E-07	3.72E-04	-5.76E-07	4.06E-04	-5.75E-07	3.94E-04		
	Sum	-5.70E-03	3.90E+00	-5.70E-03	4.00E+00	-5.38E-03	3.75E+00	-5.74E-03	4.07E+00	-5.74E-03	3.95E+00		
0.0001	M	-5.69E-07	4.09E-04	-5.35E-07	3.86E-04	-5.70E-07	4.08E-04	-5.68E-07	4.08E-04	-5.71E-07	4.03E-04	-5.29E-07	3.78E-04
	Sum	-5.68E-03	4.11E+00	-5.33E-03	3.89E+00	-5.69E-03	4.10E+00	-5.66E-03	4.10E+00	-5.69E-03	4.04E+00	-5.27E-03	3.84E+00

(M: median)

Figures
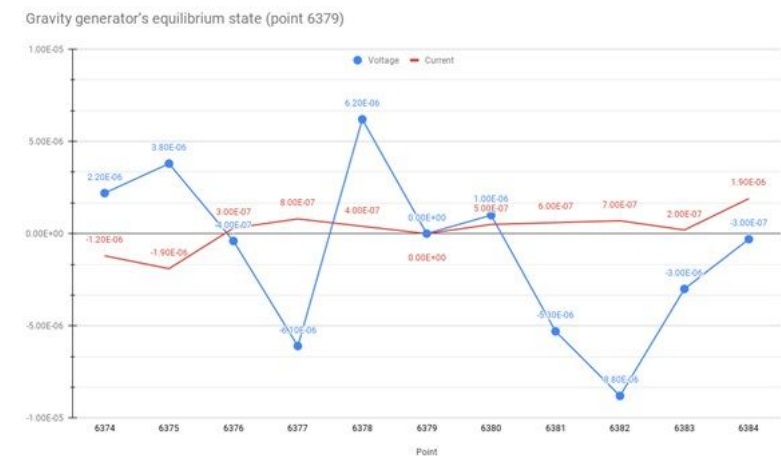
Figure 1

Magnetic sea generator. 0 voltage and 0 current in the equilibrium state during experiment F4 6380 (6379): in the direction Earth spins under gravity and in the opposite direction under the repulsive magnetic force.
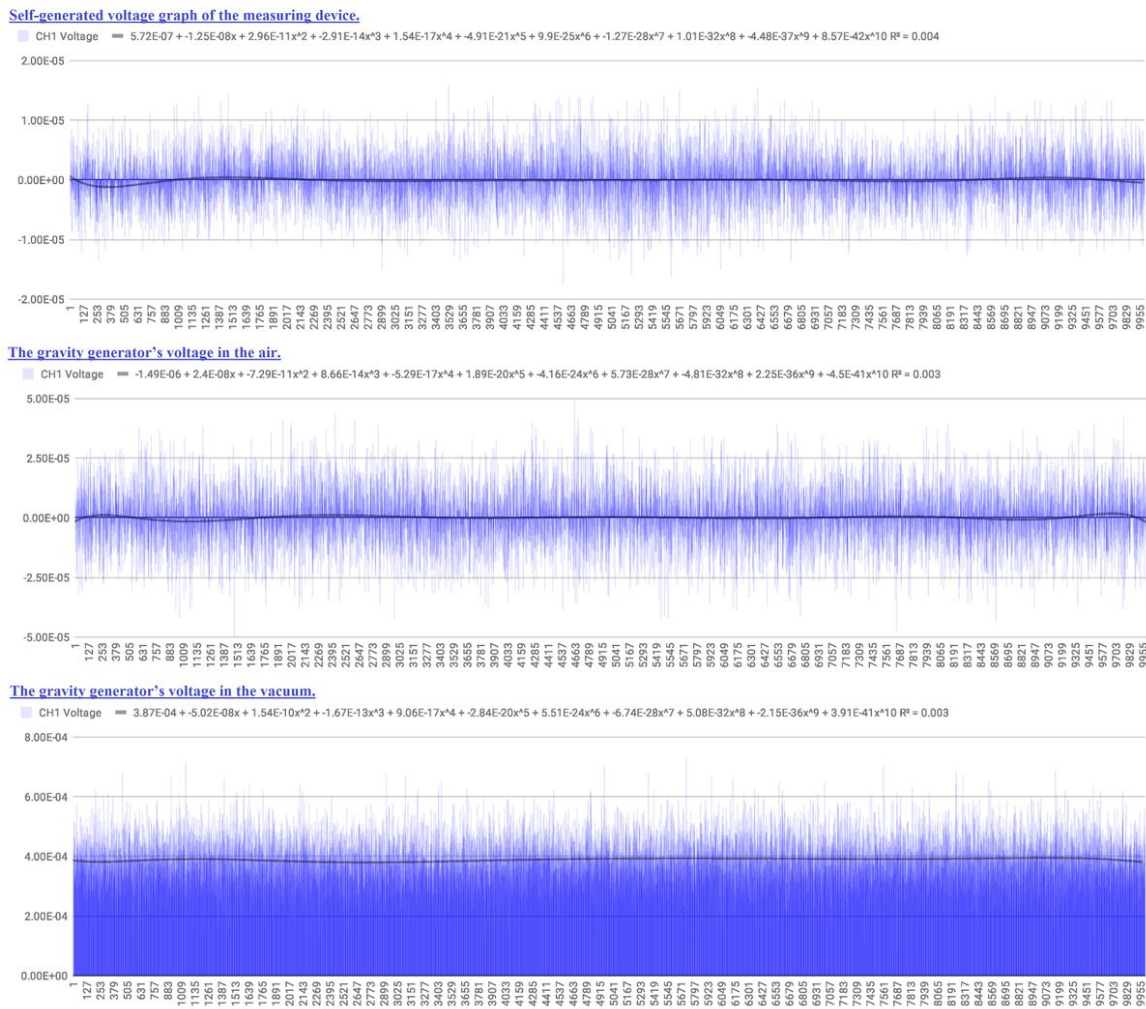
Figure 2

The voltage graph of a measuring device and the magnetic sea generator with(out) air. This is the second measurement data. Self-generated voltage graph of the measuring device: Keysight B2901A had a similar pattern. Mean: -1.00E-07, Sum: -7.79E-04, Standard deviation: 4.49E-06. The magnetic sea generator's voltage in the air was measured by Keysight B2901A. Mean: 0.00E+00, Sum: 1.03E-03, Standard deviation: 1.28E-05. All three measurements had a similar

pattern. The magnetic sea generator's voltage in the vacuum was measured by Keysight B2901A. Mean: 3.86E-04, Sum: 3.89E+00, Standard deviation: 7.88E-05. All ten measurements had a similar pattern except the 5th measurement. (Supplement S4)
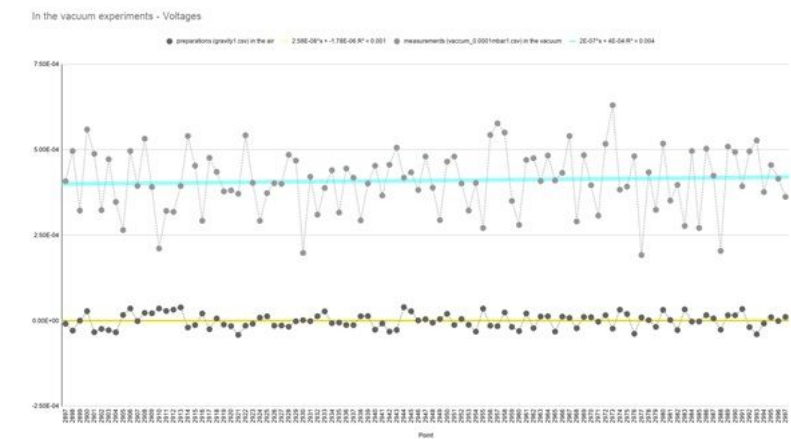
Figure 3

In the vacuum experiments – Voltages This is the first measurement data of the magnetic sea generator with(out) air. We compared from point 2897 to 2997 of 100,000 points for 10 seconds. When the magnetic sea generator was in the air, the voltages from 2897 point to 2997 point (Raw data from Data S2 2020.06.18. Vacuum chamber & magnetic sea generator in the air. - gravity1.csv) are displayed, and the trend line is displayed. Next, the voltages from 2897 point to 2997 point were displayed in the data measured when the magnetic sea generator was in a vacuum (Data S3 2020.06.18.Experiments with the magnetic sea generator in the vacuum chamber.-vacuum_0.0001mbar1.csv).

Figure 4

The current graph of a measuring device and the magnetic sea generator with(out) air. This is the second measurement data. Self-generated current graph of the measuring device: Keysight B2901A had a similar pattern. Mean: -5.00E-12, Sum: -7.11E-08, Standard deviation: 2.52E-10. The magnetic sea generator's current in the air was measured by Keysight B2901A. Mean: -6.25E-07, Sum: -6.25E-03, Standard deviation: 1.95E-08. All three measurements had a similar pattern. The magnetic sea generator's current in the vacuum was measured by Keysight B2901A. Mean: -5.35E-07, Sum: -5.33E-033, Standard deviation: 3.22E-08. All ten measurements had a similar pattern. (Supplement S4)
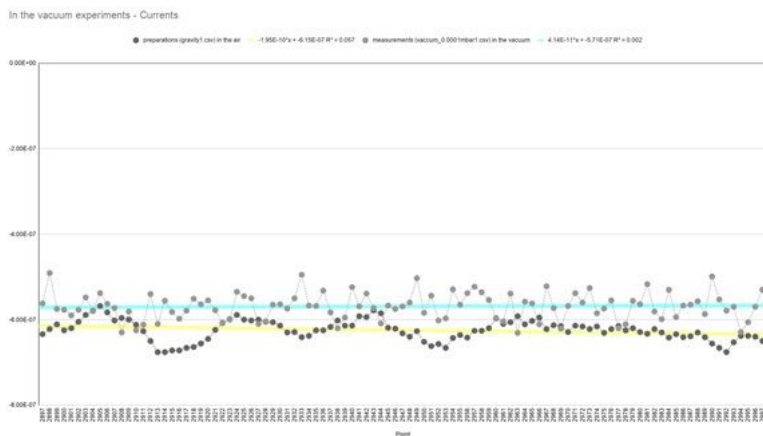
Figure 5

In the vacuum experiments – Currents This is the first measurement data of the magnetic sea generator with(out) air. We compared from point 2897 to 2997 of 100,000 points for 10 seconds. When the magnetic sea generator was in the air, the currents from 2897 point to 2997 point (Raw data from Data S2 2020.06.18. Vacuum chamber & magnetic sea generator in the air.- gravity1.csv) are displayed, and the trend line is displayed. Next, the currents from 2897 point to 2997 point were displayed in the data measured when the magnetic sea generator was in the vacuum (Data S3 2020.06.18.Experiments with the magnetic sea generator in the vacuum chamber.-vacuum_0.0001mbar1.csv).
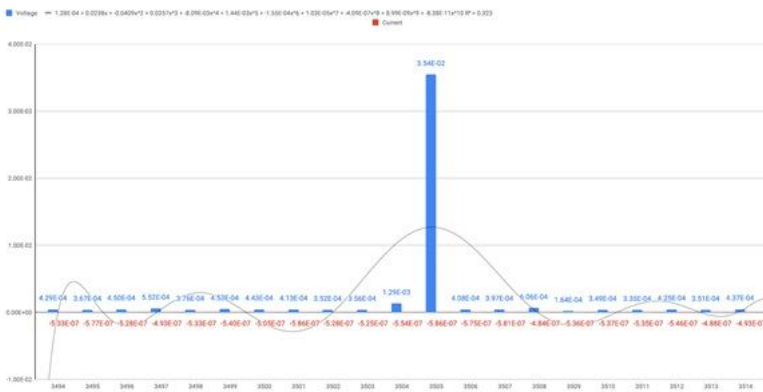
Figure 6

GW20200618. It was not a phenomenon caused by a change of pressure in the vacuum tube because it is measured by 0.001 second units, and only five points change occurred in succession. The voltage increased 0.0352 milivolt, 0.0356 milivolt, 0.129 milivolt, 3.54 milivolt, 0.0408 milivolt at 3502, 3503, 3504, 3505 and 3506 points in the vacuum on June 18, 2020. According to Newton's third law, the other points also showsa rebound phenomenon (R2=0.323).